

Claims

1. Littrow grating with a multiplicity of parallel
5 diffraction structures succeeding one another periodically,
which are arranged on a support defining a base area and
each incorporate a blaze flank inclined towards the base
area substantially at the Littrow angle and a counter-
flank, wherein the blaze flank and the counter-flank form
10 at the apex of a diffraction structure an apex angle which
is less than 90° ,

characterised in that

15 the counter-flank (6) comprises at least two substantially
plane area sections (7, 8) which, bordering one another and
inclined relative to one another by an angle of inclination
(β), extend parallel with the extension direction of the
diffraction structure (3), wherein due to the inclination
20 of the at least two area sections (7, 8) relative to one
another the counter-flank (6) all in all exhibits a concave
surface viewed from the light incidence side.

2. Littrow grating according to claim 1, characterised in
25 that the area sections (7, 8) exhibit a width ratio of 0.5
to 2 measured normal to the extension direction of the
diffraction structures (3).

3. Littrow grating according to claim 1 or 2,
30 characterised in that the angle of inclination (β) lies in
the range from 90° to 150° .

4. Littrow grating according to one of the preceding claims, characterised in that it consists of quartz glass.

5. Littrow grating according to one of the preceding
5 claims, characterised in that it comprises a coating increasing the reflectivity.

6. Littrow grating according to claim 5, characterised in that the coating is an aluminium coating.

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7. Littrow grating according to one of the preceding claims, characterised in that it comprises a dielectric layer system.

15 8. Littrow grating according to claim 7, characterised in that the dielectric layer system comprises layers of Al_2O_3 and MgF_2 .

9. Littrow grating according to claim 7, characterised in
20 that the dielectric layer system comprises layers of LaF_3 and MgF_2 .

10. Littrow grating according to one of the preceding claims, characterised in that the blaze flank (5)
25 comprises, measured normal to the extension direction of the diffraction structures (3), a minimum width of $g \cos(\theta)$, where g designates the grating period of the Littrow grating and θ the Littrow angle.

30 11. Use of a Littrow grating according to one of claims 1 to 10 in a diffraction order of the incident light wavelength above or equal to the 15th diffraction order.

12. Use of a Littrow grating according to one of claims 1 to 11 for the diffraction of UV light (9, 10, 11, 12) with a wavelength that is less than 250 nm.